

Amex 3

- TAPE III (15 mn)
Ferredoxin of Anabaena v. (two times)
NIF H of Anabaena v. (three times)
NIF A of Anabaena v. (three times) (*)
NIF D of Anabaena v. (three times) (*)
Nitrate reductase of Chlorella s. (three times)
Protein 35 K of Anabaena v. (two times) (*)

The transcriptions had been realized by J. Sternheimer on a sampler Casio SK1 apart from those labelled (*) which were made by P. Ferrandiz on a "One Key Play" software written by Sylvie Guillou and Fabrice Ocelli (INSERM St-Anne, Paris). The rate of the transpositions is tuned so as to make their length correspond to the photoperiods of the micro-organisms.

Tape I was played twice a day, from the 30th of April to the 5th of May. Then from the 7th to the 10th of May TAPE II was played in the morning while TAPE III was played in the evening.

During this period the viability of the micro-organisms was regularly controlled: Samples were drawn from the cultures and then checked under a microscope.

Results

- Evolution of the coloration of cultures (Fig. 1).

Once poured in the vats the solutions looked opaque (after tossing). This was due to the manure mentioned above, the dilution rate of the original stock but also to the spread of a fibrous contaminant which was not characterized.

From the 2nd day of listening the musical vat presented a greater proportion of suspending matter than the control one. However this trend reversed itself by the 4th day. We therefore assumed that the musical exposures had been too long and we decided to abort the diffusion of Tape I.

Instead Tapes II and III have been used. We then observed on May 8th that the tint of the cultures in the musical vat displayed a green blue coloration more pronounced than those in the control vat (Fig. 2). This trend kept increasing up to the end of the experiment.

- Oxygen release.

Ten days after the end of the period of diffusion the musical cultures became characterized by a proliferation of bubbles at the surface (Fig. 3). Since these bubbles had the property to revive the flame of a lighted match which was put close by, we concluded they contained oxygen. On May, 24th there were about 70 surface bubbles and on the 28th they were 130 (Fig. 4). We point out that the maximum number of visible bubbles observed in the control vat is 8. Hence there is more than a factor 16 between the two cultures with respect to oxygen release. In fact the medium of the musical culture was saturated with oxygen at the end of the observation time.

Clearly this is correlated to an increase of the photosynthetic activity in the musical vat. It indicates that while the oxygen was released some carbonated composites have been fixed (Fig. 5, taken six months later).

Thus this particular application of the epigenetic regulation process led to an interesting depollutive system. This should beget further interests.